Feb. 22, 1944. W. H. INMAN 2,342,543

CONTAINER CLOSURE MEANS

Filed June 5, 1941

Fig. 1

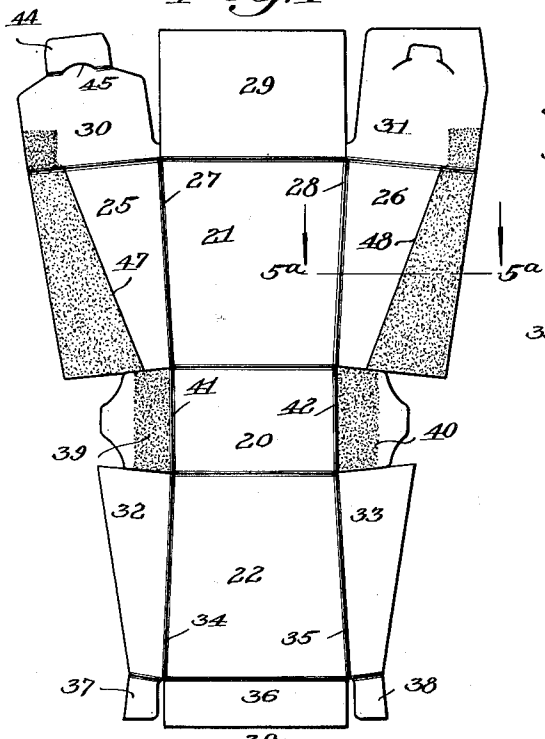


Fig. 8

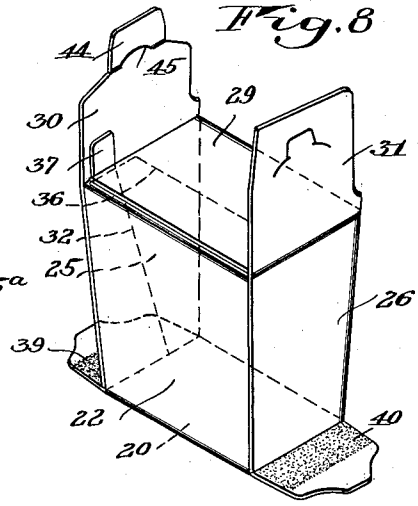


Fig. 3

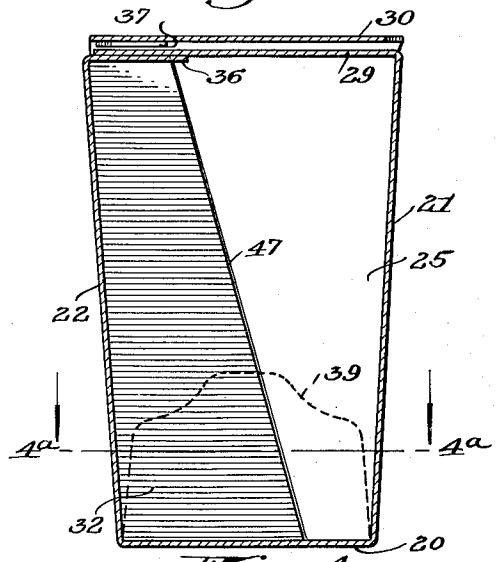


Fig. 2

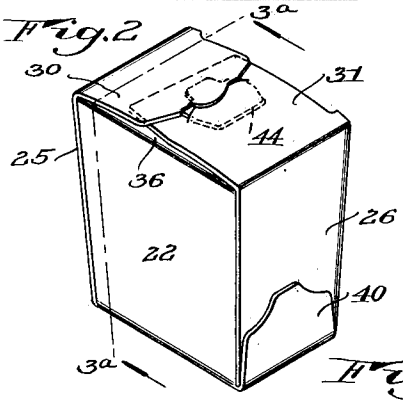


Fig. 6

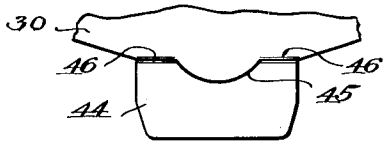


Fig. 4

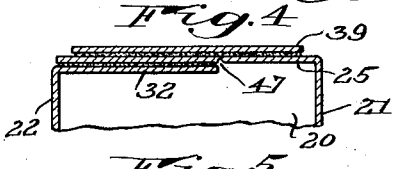


Fig. 5

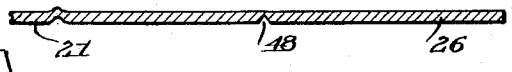
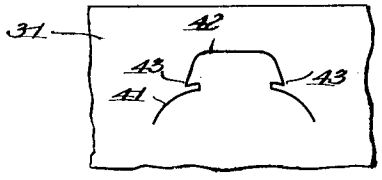


Fig. 7



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CONTAINER CLOSURE MEANS

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Application June 5, 1941, Serial No. 396,705

3 Claims. (Cl. 229—26)

This invention relates to containers made of cardboard, or like material, which is cut into blanks, scored and folded into shape to form the containers, and more particularly to containers of the variety provided with closure flaps and with means for securing or locking such flaps in closed position for retaining the container contents.

One object of the invention is to provide a simple and effective means for locking the folding closure flaps of the container together in closed position.

A further object is the provision of improved means for securely locking the closure flaps of a container for liquid or semi-liquid contents, in such a way as to hold them against relative movement, thereby holding the container body in shape and preventing such relative shifting or twisting of the parts as might tend to open up the joints and result in leakage of the contents. This application is a division of my copending application Serial No. 341,947, describing and claiming a container structure with which the present closure lock has been employed.

To these and other ends the invention resides in certain improvements and combinations of parts, all as will be herinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawing:

Fig. 1 shows a blank scored for folding to make a container having applied thereto a closure locking means embodying the present invention;

Fig. 2 is a perspective view of a folded and closed container embodying the present invention;

Fig. 3 is an enlarged sectional elevation of the container on the line 3*a*—3*a* in Fig. 2;

Fig. 4 is a sectional view on the line 4*a*—4*a* in Fig. 3;

Fig. 5 is an enlarged fragmentary section on the line 5*a*—5*a* in Fig. 1;

Fig. 6 is an enlarged fragmentary view of one of the container closure flaps embodying the present invention;

Fig. 7 is a view similar to Fig 6 showing a complementary closure flap embodying the invention, and

Fig. 8 is a perspective view of the container with the closure and bottom flaps released and unfolded in the course of unfolding and collapsing the whole carton.

The invention is embodied in the present instance, by way of illustration, in a container made from a cardboard blank, cut, scored, folded, set up and glued to form a container having tapered sides and a filling opening at its top, of the variety known as a "pail" and commonly employed for distributing food products, such as ice cream, although it will be understood that the invention is applicable as well to other types and varieties of paper or cardboard containers.

The blank for forming the carton is shown in Fig. 1 as cut from any foldable cardboard or like material of suitable thickness and character for such purposes, as well understood in the art. Score lines of any suitable character are formed at the desired lines of folding and indicate the several parts, comprising a rectangular bottom portion **20**, with oppositely extending tapered side walls **21** and **22**, adapted to be folded upwardly from opposite sides of the bottom. Side wall **21** has oppositely extending, tapered side flaps **25** and **26**, formed by folding along the score lines **27** and **28**. Side walls **21** and **22** preferably correspond in size and shape to opposite side walls of the carton, and side flaps **25** and **26** preferably correspond in size and shape with the adjacent, intermediate side walls.

Side wall **21** is extended to form an inner closure flap **29** of substantially the size and shape of the top opening of the container and side flaps **25** and **26** are extended to form outer top closure flaps **30** and **31**, respectively, of sufficient length to overlap one another and carry the locking means of the present invention, as hereafter more fully described.

Side wall **22** is extended at opposite sides to provide the relatively narrow side flaps **32** and **33** which are folded therefrom about the score lines **34** and **35**. Side wall **22** is extended at its end to form also an inner top closure flap **36**. Side flaps **32** and **33** are extended at their ends to form small strengthening top closure flaps **37** and **38**.

The bottom **20** has opposite extensions **39** and **40** for folding upwardly about score lines **41** and **42**, respectively, to form parts of the side walls of the carton. It will be noted that the side flaps **32** and **33** have outer edges lying substantially parallel, in the flat blank, with the outer edges of the cooperating side flaps **25** and **26**, respectively, with the result that the blanks may be successively cut from the stock sheet, in alternating reverse, substantially abutting relation so as to employ a minimum quantity of stock, as more fully described in my said copending application.

In setting up the carton from the blank which is preferably first glued as indicated by the stippling on the several flaps in Fig. 1, the side walls

21 and 22 are first erected. Side flaps 32 and 33 are folded inwardly to form the intermediate side walls, and side flaps 25 and 26 are folded inwardly and glued in overlapping relation on the outer sides of flaps 32 and 33, respectively, as shown in Figs. 2, 3, and 8. With the side walls thus erected, the bottom flaps 39 and 40 are brought up and glued in overlapping relation on the outer sides of flaps 25 and 26, as shown, thus forming a strong, fluid tight bottom closure. It will be noted that the gluing of these bottom flaps is not carried fully to the somewhat pointed ends of the flaps which are thus left free to be grasped and pulled in collapsing the carton as hereafter described. Small flaps 37 and 38 are preferably glued to the adjacent closure flaps 30 and 31, respectively, to reinforce the tops of the narrow side flaps 32 and 33.

The container is closed by first folding down the relatively narrow top flap 36 and then folding down over that the wide top flap 29, these inner top closure flaps being sufficiently extended in size to effectively close the top of the container. The main outer closure flaps 30 and 31 are then folded down flat substantially into the plane of the top opening, over the inner flaps 36 and 29 and are secured together by means embodying the present invention, to lock the parts together and hold them in shape.

The closure locking means comprises, preferably, a curved slit 41 cut substantially centrally in flap 31, Fig. 7, some distance inwardly from the edge of the flap, as shown. Slit 41 forms an outwardly projecting and tapered tab 42 having undercut side portions forming projecting shoulders 43 on each side adjacent the base of the tab. The cooperating flap 30 is preferably formed substantially centrally with an outwardly projecting and tapered tongue 44, Fig. 6, at the base of which is cut a curved slit 45 of slightly less length and effective span than the width of tab 42 across its shoulders 43. It will be seen that slit 45 is convexly curved toward the outer end of tongue 44 to form a lug adapted to be raised to open said slit when said tongue is bent downwardly for insertion under said tab. The base of the tongue at the ends of the slit is preferably scored along lines 46 to facilitate bending of the tongue.

As the flaps 30 and 31 are brought together, the outer end of flap 31 is depressed so as to swing open the slit 41 and leave tab 42 in a relatively raised position. Tongue 44 is then depressed and inserted under tab 42 in tight engagement at its sides with the ends of the slit 41. At the same time, slit 45 is similarly opened for the reception of tab 42 which is slightly compressed by bending, so that shoulders 43 spring past the ends of the slit 45 and then expand and interlock therewith.

A locking means so constructed provides multiple and tight engagement between flaps 30 and 31 at four spaced points, namely, the ends of slits 41 and 45, so as to hold the flaps immovably interlocked and alined with one another and prevent any twisting or distortion of the container, which might tend to cause opening at its joints and leakage of the contents.

In opening a container of the above character, a pull of some excess force serves to withdraw tab 42 from slit 45, allowing the outer top closure flaps 30 and 31 to be raised to the position shown in Fig. 8, along with the small attached flaps 37 and 39, respectively. The free ends of the bottom flaps 39 and 40 are then pulled to strip them from adhesion to the side walls 25 and 26, respectively, as shown. Then, the closure flaps 30 and 31 are grasped and pulled outwardly and downwardly, tearing the small flaps 37 and 38 from their side flaps 32 and 33, respectively, so that the side flaps 25 and 26 are stripped from adhesion to the side flaps 32 and 33, respectively. This is facilitated by the narrow width and relatively small area of the side flaps 32 and 33 and by the tendency of the latter to stick to any semi-liquid contents of the pail, such as ice cream. Side flaps 25 and 26 are preferably scored on the inner surface along the lines 47 and 48, adjacent the edges of the adhesion to flaps 32 and 33 so as to confine the stripping action and prevent peeling of surface portions extending into other areas of flaps 25 and 26. The inner closure flaps 29 and 36 and the side walls 21 and 22 are moved outwardly and downwardly to collapse the container and free its contents for convenient access and emptying.

It will thus be seen that the invention provides a simple, effective and convenient type of container lock which is ready engaged and disengaged and, while engaged, secures the closure flaps together in a substantially rigid fashion, by multiple points of contact, so as to prevent distortion and twisting of the closure portions and maintain the joints, adjacent the closure, closed against leakage.

I claim:

1. A container formed from a folded cardboard blank and comprising a bottom, side walls and a top opening, opposing flaps on said side walls adapted to be folded down flat substantially into the plane of said top opening for closing said opening, one of said flaps having formed substantially centrally therein a slit shaped to provide a centrally located, outwardly projecting tab, having undercut opposite sides and arranged for locking engagement in a slit in the opposite flap and a tongue projecting substantially centrally from said opposite flap and arranged for insertion under said locking tab and in tight engagement in said slit, said tongue having at its base a slit curved convexly toward the outer end of said tongue to form a lug adapted to be raised to open said slit when said tongue is bent downwardly for insertion under said locking tab, and said locking tab being arranged to overlie said tongue and to be manually engaged and inserted downwardly and inwardly under said lug and through said slit for locking engagement at its undercut sides with the ends of said tongue slit to secure said flaps firmly together and hold said container against distortion.

2. A container formed from a folded cardboard blank and comprising a bottom, side walls and a top opening, opposing flaps on said side walls adapted to be folded down flat substantially into the plane of said top opening for closing said opening, one of said flaps having formed substantially centrally therein a slit shaped to provide an outwardly projecting tab with projecting shoulders on opposite sides thereof adjacent its base and arranged for locking engagement in a slit in the opposite flap, and a tongue projecting substantially centrally from said opposite flap with its sides extending substantially parallel with each other adjacent its base and tapered inwardly adjacent its outer end for insertion under said locking tab in tight engagement in said slit, said tongue having at its base a slit of less width than the width of said tab

at said shoulders and curved convexly toward the outer end of said tongue to form a lug adapted to be raised to open said slit when said tongue is bent downwardly for insertion under said locking tab, and said locking tab being arranged to overlie said tongue and to be manually engaged and inserted downwardly and inwardly under said lug and through said slit with said shoulders expanded to interlock with the opposite ends of said slit for cooperation with said tongue to secure said flaps firmly together and hold said container against distortion.

3. A container formed from a folded cardboard blank and comprising a bottom, side walls and a top opening, opposing flaps on said side walls adapted to be folded down flat substantially into the plane of said top opening for closing said opening, one of said flaps having formed substantially centrally therein an outwardly curved slit shaped to provide an outwardly projecting, tapered locking tab with projecting shoulders on opposite sides thereof adjacent its base and arranged for locking engagement in a slit in the opposite flap, and a tongue projecting substantially centrally from said opposite flap and arranged for insertion under said locking tab in tight engagement in said slit, said tongue being scored across its base to facilitate bending and having at said base an outwardly curved slit of less width than the width of said locking tab at said shoulders, and said locking tab being arranged to overlie said tongue and to be manually engaged and inserted downwardly and inwardly through said tongue slit with said shoulders expanded to interlock with the ends of said tongue slit, for cooperation with said tongue to secure said flaps firmly together and hold said container against distortion.

WILLIAM H. INMAN.